

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) An Mg-based ferrite material consisting essentially of X_2O_n , MgO and Fe_2O_3 components or of X_2O_n , CaO, MgO and Fe_2O_3 components, and having a composition of formula (1):



wherein

X is Li, Na, K, Rb, Cs, Sr, Ba, Y, La, Ti, Zr, Hf, V, Nb, Ta, Al, Ga, Si, Ge, P, Sb, Bi or a combination thereof; and

a, b, c and d satisfy

$$0.001 \leq R(X) \leq 0.15$$

wherein

R(X) is represented by the formula:

$$R(X) = \frac{a \times (Aw(X) + (n/2) \times Aw(O))}{a \times (Aw(X) + (n/2) \times Aw(O)) + b \times Fw(MgO) + (c/2) \times Fw(Fe_2O_3) + d \times Fw(CaO)};$$

Aw(X) and Aw(O) are an atomic weight of X and an atomic weight of O, respectively; n is an oxidation number of X; and

$Fw(A)$ is a formula weight of A,

$$0.01 \leq b/(b+c/2) \leq 0.85 \text{ and}$$

$$0 \leq R(Ca) \leq 0.15$$

wherein

$R(Ca)$ is represented by the formula:

$$R(Ca) = d \times Fw(CaO) / (a \times (Aw(X) + (n/2) \times Aw(O)) + b \times Fw(MgO) + (c/2) \times Fw(Fe_2O_3) + d \times Fw(CaO));$$

wherein

$Fw(A)$ is the same as defined in $R(X)$,

e is determined by the oxidation numbers of X, Mg, Fe and Ca;

wherein the Mg-based ferrite material has a dielectric breakdown voltage in the range of 1.5 - 5.0 kV; and

wherein the Mg-based ferrite material has a saturation magnetization in the range of 30-80 emu/g measured at 14 kOe using a vibrating sample magnetometer.

2. (Original) The Mg-based ferrite material of claim 1, wherein X is Li, Na, K, Sr, Y, La, Ti, Zr, V, Al, Si, P, Bi or a combination thereof.

Claims 3 and 4. (Cancelled).

5. (Previously Presented) The Mg-based ferrite material of claim 1 or 2, wherein b and c satisfy

$$0.01 \leq b / (b + c / 2) \leq 0.30.$$

6. (Previously Presented) The Mg-based ferrite material of claim 1 or 2, wherein the Mg-based ferrite material has an average particle diameter in the range of 0.01 - 150 μm .

7. (Previously Presented) An electrophotographic development carrier comprising an Mg-based ferrite material of claim 1.

8. (Previously Presented) An electrophotographic development carrier of claim 7, wherein the Mg-based ferrite material is coated with a resin.

9. (Original) An electrophotographic developer comprising an electrophotographic development carrier of claim 7 or claim 8, and a toner.

10. (Original) The electrophotographic developer of claim 9, wherein the ratio of the toner to the carrier by weight is in the range of 2 - 40 wt%.

11. (Currently Amended) A process for producing an Mg-based ferrite of claim 1, comprising steps of:

i) mixing raw materials appropriately selected from MgO, MgCO₃, Mg(OH)₂ and MgCl₂ as Mg raw materials; FeO, Fe₂O₃, Fe₃O₄ and Fe(OH)_x (wherein x is a number of 2 to 3) as Fe raw materials; Li₂O, Li₂CO₃ and LiOH as Li raw materials; Na₂O, Na₂CO₃ and NaOH as Na raw materials; K₂O, K₂CO₃ and KOH as K raw materials; SrO and SrCO₃ as Sr raw materials; Y₂O₃ as a Y raw material; La₂O₃ as a La raw material; TiO₂ including anatase and rutile as a Ti raw material; Zr(OH)₄ and ZrO₂ as Zr raw materials; various types of vanadium oxides as V raw materials; various types of alumina such as α -alumina, β -alumina and γ -alumina as Al raw materials; various types of silica as Si raw materials; P₂O₅ as a P raw material; Bi₂O₃ as a Bi raw material; and CaO, CaCO₃, Ca(OH)₂ and CaCl₂ as Ca raw materials, provided that at least one of Li, Na, K, Sr, Y, La, Ti, Zr, V, Al, Si, P and Bi-containing compounds, at least one Mg-containing compound, and at least one Fe-containing compound are selected;

ii) sintering the mixed raw materials to grow particles, wherein a maximum temperature is in the range of 800-1500 °C; and

(iii) heating the sintered raw materials under an oxygen-containing atmosphere to condition properties of the

particles, wherein a maximum temperature is in the range of
300-1000 °C.; and

wherein the oxygen concentration in the atmosphere
of step (iii) is higher than that of step (ii).

12. (Cancelled)

13. (Currently Amended) The process of claim 11-~~or
claim 12~~, wherein the atmosphere of the step (iii) is an inert
gas atmosphere having an oxygen concentration of 0.05 to 25.0
vol%.

14. (Currently Amended) The process of claim 11-~~or
12~~, wherein the atmosphere of the step (ii) is an inert gas
atmosphere having an oxygen concentration of 0.001 to 10.0
vol%.

15. (Previously presented) The process of claim
11, wherein the step (i) of mixing raw materials comprises
steps of:

preparing a slurry containing an Mg-containing
compound and an Fe-containing compound; and
drying the slurry for granulation.

16. (Original) The process of claim 15, wherein the slurry containing an Mg-containing compound and an Fe-containing compound further comprises a compound containing Li, Na, K, Rb, Cs, Sr, Ba, Y, La, Ti, Zr, Hf, V, Nb, Ta, Al, Ga, Si, Ge, P, Sb, Bi, Ca or a combination thereof.

17. (Original) The process of claim 15 or claim 16,

wherein the slurry containing an Mg-containing compound and an Fe-containing compound further comprises a binder, and

wherein the content of the binder is in the range of 0.1 - 5 wt%, based on the total amount of the raw materials in the slurry.

18. (New) A Mg-based ferrite material as claimed in claim 1, wherein "a" is from 0.003 to 0.19, "b" is from 0.10 to 0.20, "c" is from 1.6 to 1.8, "d" is from 0.025 to 0.43, and "e" is from 2.5 to 3.0.

19. (New) An Mg-based ferrite material obtained by a process comprising steps of:

i) mixing raw materials appropriately selected from MgO, MgCO₃, Mg(OH)₂ and MgCl₂ as Mg raw materials; FeO, Fe₂O₃, Fe₃O₄ and Fe(OH)_x (wherein x is a number of 2 to 3) as Fe

raw materials; Li_2O , Li_2CO_3 and LiOH as Li raw materials; Na_2O , Na_2CO_3 and NaOH as Na raw materials; K_2O , K_2CO_3 and KOH as K raw materials; SrO and SrCO_3 as Sr raw materials; Y_2O_3 as a Y raw material; La_2O_3 as a La raw material; TiO_2 including anatase and rutile as a Ti raw material; $\text{Zr}(\text{OH})_4$ and ZrO_2 as Zr raw materials; various types of vanadium oxides as V raw materials; various types of alumina such as α -alumina, β -alumina and γ -alumina as Al raw materials; various types of silica as Si raw materials; P_2O_5 as a P raw material; Bi_2O_3 as a Bi raw material; and CaO , CaCO_3 , $\text{Ca}(\text{OH})_2$ and CaCl_2 as Ca raw materials, provided that at least one of Li, Na, K, Sr, Y, La, Ti, Zr, V, Al, Si, P and Bi-containing compounds, at least one Mg-containing compound, and at least one Fe-containing compound are selected;

(ii) sintering the mixed raw materials to grow particles, wherein a maximum temperature is in the range of 800-1500 °C; and

(iii) heating the sintered raw materials under an oxygen-containing atmosphere to condition properties of the particles, wherein a maximum temperature is in the range of 300-1000 °C.